

Appl. No. 10/597,976
Response to Office Action of February 24, 2011

Docket No.: 2004P03061WOUS
Customer No. 24737

REMARKS

By this amendment, claims 2 and 8-10 have been canceled. Claims 1, 11, 12, and 15-17 have been amended. Claims 1, 4-5, 7, and 11-17 remain in this application. This application has been carefully considered in connection with the Examiner's Action. Reconsideration and allowance of the application is requested.

Rejection under 35 U.S.C. §101

Claims 1, 2, 4, 5, 7-14 and 17 stand rejected under 35 U.S.C. §101 because the claimed invention is directed to non-statutory subject matter. With respect to claims 8-10, the same have been canceled herein, thus rendering the rejection thereof now moot. With respect to claims 1, 2, 4, 5, 7, 11-14 and 17, this rejection is respectfully traversed for at least the following reasons.

With respect to claims 1, 11 and 12, the same have been amended to include *inter alia* "computing, via a cost value computing device," and "assigning, via a depth value assigning device". Support for the amendments to claims 1, 11 and 12 can be found in the specification, at least on page 10, lines 27-33; page 11, lines 24-30; and FIG. 4. Thus, as now more clearly presented, claims 1, 2, 4, 5, 7 and 11-14 are directed to statutory subject matter.

With respect to claim 17, the same has been amended to more clearly recite a "non-transitory *computer-readable medium*". Support for the amendments to claim 17 can be found in the specification at least on page 5, lines 25-34. Thus, as now more clearly presented, claim 17 is directed to statutory subject matter.

Accordingly, the rejection of claims 1, 2, 4, 5, 7-14 and 17 is now believed overcome. Withdrawal of the rejection is respectfully requested.

Rejection under 35 U.S.C. §103

Claims 1-4 and 6-13 and 15-17 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Wilinski et al. (WIPO Publication No. 02/095680; hereinafter "Wilinski") in view of Zheng et al. (0. Zheng, R. Chellappa; Estimation of Illuminant

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Direction, Albedo, and Shape from Shading; IEEE Transactions of Pattern Analysis and Machine Intelligence, Vol. 13, July 1991; hereinafter "**Zheng**"). Redert et al. (WIPO Publication No. 2004/066212; hereafter "**AAPA**") and Wu et al. (Z. Wu, L.Li; A Line-Integration Based Method for Depth Recovery from Surface Normals; IEEE, November 1988; hereinafter "**Wu**"). With respect to claim 1, Applicant respectfully traverses this rejection on the grounds that these references are defective in establishing a prima facie case of obviousness.

Independent claim 1 has been amended to more clearly define that which applicant regards as the invention. In particular, claim 1 as now presented recites, inter alia, the specific feature limitation of "[a] path comprises a group of connected pixels that extends from (e) the first one of the pixels to (f) a second one of the pixels, wherein the second one of the pixels belongs to (g) a predetermined subset of the pixels of the image, wherein the predetermined subset comprises one selected from the group consisting of (g)(i) pixels which are located at a *border* of the image, (g)(ii) pixels of a *part of the border*, and (g)(iii) a *central pixel* of the image, further wherein the cost value for the first one of pixels is computed by (h) *accumulating products* of (h)(i) differences between the values of the pixels which are disposed on the path and (h)(ii) respective *weighting factors* for the differences, wherein the weighting factors control contributions of pixel value differences for computation of depth values corresponding to respective pixels, wherein (h)(iii) a *first one of the weighting factors* which is related to a difference between a value of a particular pixel and a value of its neighboring pixel, *is based on a distance* between the particular pixel and the first one of the pixels, wherein the first one of the weighting factors is *low* if the distance between the particular pixel and the first one of the pixels is *high* and wherein (h)(iv) a *second one of the weighting factors* which is related to a difference between a value of a particular pixel and a value of its neighboring pixel, *is based on the location* of the neighboring pixel related to the particular pixel, wherein the second one of the weighting factors is *high* if the neighboring pixel is located above the particular pixel and is *low* if the neighboring pixel

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is located below the particular pixel" (emphasis added). Support for claim 1 (as well as claims 15-17) can be found in the specification at least on page 2, lines 21-25; page 3, lines 20-31; page 6, lines 31-32; page 7, lines 4-9, 20-23 and 31-32; and in FIGs. 1 and 2 ((114,116), (118,120) of path 112) of FIG. 1; ((210,212), (206,208) of path 202 and (222,224), (218,220) of path 216).

Applicant submits that neither **Wilinski, Zheng, AAPA**, nor **Wu** discloses, nor suggests, either alone or in combination, at least the aforementioned specific feature limitation of independent claim 1, for one or more of the following reasons.

The **Wilinski, Zheng, AAPA** and **Wu** patents cannot be applied to reject claim 1 under 35 U.S.C. § 103 which provides that:

A patent may not be obtained ... if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains ...
(Emphasis added)

When evaluating a claim for determining obviousness, all limitations of the claim must be evaluated. However, since neither **Wilinski, Zheng, AAPA**, nor **Wu** teaches or suggests the aforementioned specific feature limitation as recited in claim 1, it is impossible to render the subject matter of claim 1 as a whole obvious, and the explicit terms of the statute cannot be met.

The Office Action explicitly concedes that, with respect to the citation of **Wilinski, Zheng, AAPA** and **Wu**, the cited references do not teach "the cost value for the first one of pixels is computed by accumulating products of differences between the values of the pixels which are disposed on the path and respective weighting factors for those differences" (Office Action, page 13). In addition, as presented herein, Claim 1 further recites "wherein the predetermined subset comprises one selected from the group

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consisting of (g)(i) pixels which are located at a border of the image, (g)(ii) pixels of a part of the border, and (g)(iii) a central pixel of the image, further wherein the cost value for the first one of pixels is computed by (h) *accumulating products* of (h)(i) *differences* between the values of the pixels which are disposed on the path and (h)(ii) respective *weighting factors* for the differences, wherein the *weighting factors* control contributions of pixel value differences for computation of depth values corresponding to respective pixels, wherein (h)(iii) a first one of the *weighting factors* which is related to a difference between a value of a particular pixel and a value of its neighboring pixel, is based on a distance between the particular pixel and the first one of the pixels, wherein the *first one* of the *weighting factors* is *low* if the distance between the particular pixel and the first one of the pixels is *high* and wherein (h)(iv) a second one of the *weighting factors* which is related to a difference between a value of a particular pixel and a value of its neighboring pixel, is based on the location of the neighboring pixel related to the particular pixel, wherein the *second one* of the *weighting factors* is *high* if the neighboring pixel is located above the particular pixel and is *low* if the neighboring pixel is located below the particular pixel." As now presented, it is further respectfully submitted, as noted above, that none of **Wilinski, Zheng, AAPA** and **Wu** or any combination of the same, teach, suggest, or render obvious the above-cited limitation (emphasis added) as is specifically recited in claim 1. Furthermore, as noted herein, when evaluating a claim for determining obviousness, all limitations of the claim must be evaluated. However, since neither **Wilinski, Zheng, AAPA**, nor **Wu** teaches or suggests the aforementioned specific feature limitation as recited in claim 1, it is impossible to render the subject matter of claim 1 as a whole obvious, and the explicit terms of the statute cannot be met.

Thus, a *prima facie* case of obviousness has clearly not been met, and the rejection under 35 U.S.C. §103 should be withdrawn.

Accordingly, claim 1 is allowable and an early formal notice thereof is requested. Claims 2, 4, 7 and 11-13 depend from and further limit independent claim 1 and

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therefore are allowable as well. The 35 U.S.C. §103(a) rejection thereof has now been overcome. Withdrawal of the rejection is respectfully requested.

Claims 15, 16 and 17 contain limitations similar to those of claim 1. Accordingly, for similar reasons as stated with respect to overcoming the rejection of claim 1, claims 15, 16 and 17 are believed allowable and an early formal notice thereof is requested. The 35 U.S.C. § 103(a) rejection thereof has now been overcome. Withdrawal of the rejection is respectfully requested.

Claim 5 stands rejected under 35 U.S.C. §103(a) as being unpatentable over **Wilinski** in view of **Zheng, AAPA** and **Wu** as applied to claim 1 above, and further in view of **Cahill et al.** (U.S. Patent Publication No. 2004/0062439, hereinafter "**Cahill**"). Applicant respectfully traverses this rejection for at least the following reason. Claim 5 depends from and further limits allowable independent claim 1 and therefore is allowable as well. The 35 U.S.C. §103(a) rejection thereof has now been overcome. Withdrawal of the rejection is requested.

Claim 14 stands rejected under 35 U.S.C. §103(a) as being unpatentable over **Wilinski** in view of **Zheng, AAPA** and **Wu** as applied to claim 12 above, and further in view of **Nakatsuna et al.** (U.S. Patent Publication No. 2002/0154116; hereinafter "**Nakatsuna**"). Applicant respectfully traverses this rejection for at least the following reason. Claim 14 depends from and further limits dependent claim 12, which is dependent from allowable independent claim 1 and therefore is allowable as well. The 35 U.S.C. §103(a) rejection thereof has now been overcome. Withdrawal of the rejection is requested.

Conclusion

Except as indicated herein, the claims were not amended in order to address issues of patentability and Applicants respectfully reserve all rights they may have under

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the Doctrine of Equivalents. Applicants furthermore reserve their right to reintroduce subject matter deleted herein at a later time during the prosecution of this application or a continuation application. In addition, the Office Action contains various statements characterizing the claims, the specification, and the prior art. Regardless of whether such statements are addressed by Applicant, Applicant refuses to subscribe to any of these statements, unless expressly indicated by Applicant.

The matters identified in the Office Action of February 24, 2011 are now believed resolved. Accordingly, the application is believed to be in proper condition for allowance. An early formal notice of allowance of claims 1-2, 4-5 and 7-17 is requested.

Respectfully submitted,

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